TTIV
04/05/01

STATE OF NORTH CAROLINA

OFFICE OF STATE PERSONNEL

POSITION DESCRIPTION FORM (PD-102R-92)

Approved Classification: _____

Effective Date: _____

Analyst: _____

(This Space for Personnel Dept. Use Only)

1. Present Classification Title of Position Transportation Technician Supervisor I	7. Pres. 15 Digit Position No. Prop. 15 Digit Pos. No.
2. Usual Working Title of Position Survey Crew Leader	8. Department, University, Commission, or Agency Transportation
3. Requested Classification of Position Transportation Technician IV	9. Institution & Division Highways
4. Name of Immediate Supervisor	10. Section and Unit Highway Design \ Location & Surveys
5. Supervisor's Position Title & Position Number Transportation Engineering Supervisor I	11. Street Address, City and County
6. Name of Employee	12. Location of Workplace, Bldg. And Room No.

I. A. Primary Purpose of Organizational Unit:

The primary purpose of Location & Surveys is to serve as support services in providing engineering analysis, mapping, and engineering data for the design of transportation facilities and the acquisition of property for the construction of transportation facilities.

B. Primary Purpose of Position:

This is advanced level technical work supporting higher level technicians and engineers by serving as survey crew leader providing base mapping to roadway design, structure design, hydraulic engineers and field data for photogrammetric compilation. Tasks will require utilizing conventional surveys and Computer Aided Drafting and Design (CADD) equipment and Global Position System (GPS) receivers recording signals from navigational satellites. This employee serves as survey crew leader performing higher level survey work. This person will perform a wide variety of complex assignments in analyzing, computing, editing, processing and recommending corrective measures for various data sources. Work includes reviewing completed field data and CADD mapping prepared by an NCDOT survey party to insure completeness and accuracy. Work includes interpreting as-built plans for existing transportation facilities, plans for proposed transportation facilities, property deeds, plats, tax maps, technical manuals and written instructions. Work involves a fairly wide range of independent decision making and use of judgment in field and mapping-related activities. Employee receives project assignments from higher level technicians and/or engineers and directs the survey crew in field operations to complete those assignments. Employee will be responsible for the safety of survey crew during field operations and traffic control when working on or near a roadway.

C. Work Schedule:

8:00 AM to 4:30 PM, or some variation thereof, Monday through Friday, for a total of 40 hours per work week. Flex time or seasonably variable work hours may be used in individual offices upon needs and circumstances.

D. Change in Responsibilities or Organizational Relationship:

This is an upgrade of an existing position to reflect the changes in responsibilities due to changes in organizational structure and increased diversities and complexities in types of surveys performed by Location and Surveys personnel. This person has more responsible charge of the survey crew, as survey crew leader. Increased diversity in types of surveys includes complex route location, hydrographic surveys, photogrammetric control points, GPS, wetlands and endangered species habitats, toxic waste areas, archaeological sites, and deformation surveys. These duties require a greater degree of involvement and familiarity with the use of complex technical equipment including GPS equipment, electronic theodolites and distance measuring devices, data collection devices, and CADD equipment.

II. A. DESCRIPTION OF RESPONSIBILITIES AND DUTIES: Method Used (Check One) Order of importance X
Sequential order

Place an asterisk (*) next to each essential function. (See instructions for complete explanation.) Please note percentage of time for each function.

No.	%	
1	10	**Manage Field Safety -** This employee will insure all safety devices are used during the survey operations and that all employees use the required personal protective equipment and all safety procedures are followed during the field operations. The employee will participate in incident investigations, insure legibility of work zone signs and request replacements as needed.
2	55	**Direct Daily Operation of Survey Crew -** This position will assign individual daily tasks to members of the survey crew in the performance of route and other complex surveys including all field work and requisite calculations (together with maps, profiles, and other drawings) involved in the planning and design of transportation facilities. The employee will direct accurate field stakeout of horizontal alignments, baselines, right of way limits, and easement points. Employee will direct the crew in the placement of traverse lines and data collection needed for hydrographic design. This position will analyze photogrammetric aerial control plans for proper placement of aerial control targets on the ground to insure visibility from aircraft and minimize satellite blockage. This position will direct the survey crew in determining horizontal and vertical locations of photogrammetric targets to insure accurate information is transmitted. Employee will perform necessary field calculations to insure efficient operations of the survey crew. Employee will direct classification of existing natural and man-made features on aerial photographs. This position will direct the survey crew in obtaining data for digital terrain models (DTM's). This position will direct the crew in the field data collection for control network utilizing survey grade GPS equipment. This position will direct the survey crew obtaining GPS data for mapping wetland boundaries and determining geographic location of natural, cultural, and historic resources using mapping grade GPS receivers. This position will be responsible for recovering existing control monuments to be used to develop the horizontal and vertical network.
3	15	**Computations and Review -** This position will be responsible for making (or having made) computations to generate coordinate files for up-loading to data collector. Employee will direct compilations of digital project data to include DTM's, property boundaries, underground utility, hydrology, utility pole locations, and project horizontal and vertical control. This employee will direct lower level technicians in the preparation of CADD files. This position will check all data and CADD mapping to insure that the engineers' requests have been met and that the data is accurate and in compliance with acceptable standards.
4	10	**Technical Training -** This position will provide basic follow-up (on-the-job) field training in procedures and equipment usage. This position will instruct technicians on correct field procedures to insure accuracy and adherence to acceptable surveying principles. This employee will assist in training lower level technicians in the care, adjustment, calibration, and operation of electronic total stations, data collectors, and conventional survey equipment. This position will assist in training lower level technicians in the care and operation of GPS equipment and proper recording procedures.
5	05	**Property Owner Contacts -** This position will assist higher level personnel in property owner contacts, to ensure that all property owners on a project have been contacted and made aware of field survey activities and project scope as it is known at the time of surveys.
6	05	**Other Duties** - as defined by higher level technicians or engineers.

II. B. OTHER POSITION CHARACTERISTICS: (cont.)

1. Accuracy Required in Work:

Engineering measurements and calculations necessary to millimeter reporting is required. A thorough knowledge of necessary data and proper format is needed.

2. Consequence of Error:

Project delays and increased costs in preconstruction project development and during construction can result from poor execution of the duties of this position. Inaccurate procedures and/or failure to follow established guidelines and procedures can result in erroneous data being conveyed to others for use in design or property acquisition. Failure to properly follow and use safety procedures and guidelines could result in serious injury or death of employees or the traveling public.

3. Instructions Provided to Employee:

Position requirements include sufficient experience and knowledge to enable the employee to perform the duties of this position. Goals are defined and procedural guidelines are established. Deadlines are established when applicable. It is usually up to the employee to ensure completion of tasks in a timely and accurate manner, and to determine the best method to resolve issues, provide and present data, or prepare for the assigned task. Instructions may be either oral or written and may be general or specific in nature, according to the scope of the work.

4. Guides, Regulations, Policies and References Used by Employee:

NCDOT Highway Design Manual; AASHTO Geometric Design Policy; CADD and other computer references and manuals; General Statutes of North Carolina as related to Highways; NCDOT Personnel Manual; NCDOT Field Fiscal Procedures Manual; NCDOT Workplace Safety Manual; NCDOT and FHWA Manuals on Uniform Traffic Control Devices (MUTCD); Legal Principles of Boundary Surveying and other legal texts on surveying; various engineering and surveying texts including cadastral, geodesy, and route location; general practices, principles, procedures, and ethics of professional engineering and surveying as described by the NC State Board of Registration for Professional Engineers and Registered Land Surveyors; dictionary.

5. Supervision Received by Employee:

This employee is under the supervision of the Group Leader. Technical problems areas are either resolved at this level or passed up to higher level technicians or engineers for involvement or resolution. Tasks and duties may be reviewed during and after completion. Personnel matters are reviewed with immediate supervisor as needed. Personnel problems are referred to supervisor for resolution.

6. Variety and Purpose of Personal Contacts:

This position requires personal contact with the general public and daily contact with personnel within the survey group. Personal contacts with the general public will be related to route surveys and roadway design projects. There will be occasions where this employee will have contact with personnel from other units within NCDOT and other outside agencies.

7. Physical Effort:

Physical labor such as traversing rough terrain, chopping brush, or carrying heavy or cumbersome equipment may be required at times. Travel to different areas of the state may be required for some tasks.

8. Work Environment and Conditions:

Work is 75% outside in a field environment, subject to any type of weather condition and may involve periods of time in adverse weather. This employee is exposed to high volumes of traffic, animals, insects, snakes, and poisonous plants. Employee may also be required to confront irate citizens.

9. Machines, Tools, Instruments, Equipment and Materials Used:

Computers; CADD workstations; hand-held calculators; triangles, scales, and other hand-drafting or measuring equipment; manuals; large photographs and plan sheets; telephone. A working knowledge of the operation of survey equipment such as plumb bobs, electronic theodolites, data collectors, GPS receivers, tripods, bush axes, and others is required. Operation of motor vehicles is required.

10. Visual Attention, Mental Concentration and Manipulative Skills:

Visual and mental concentration is required to ensure safety of survey crew and that proper procedures are being followed to insure accurate results in both a field or office environment. Employee must manipulate resources such as survey equipment and CADD/computer equipment to gain maximum production.

11. Safety for Others:

This position is responsible for the implementation of the safety plan and placement of safety devices in a field environment for protection of both the survey crew and the traveling public. Employee is also responsible to see that each employee in the survey crew uses the correct personal protective equipment and assures compliance with safe operating procedures.

12. Dynamics of Work:

Engineering and design standards are often revised. Methods, procedures, and equipment for collecting route location survey data, including survey equipment and computer hardware and software, are always being revised, upgraded, or improved. These changes require a continuous upgrading and maintenance of knowledge of the engineering and surveying professions.

III. KNOWLEDGE, SKILLS & ABILITIES AND TRAINING & EXPERIENCE REQUIREMENTS:

A. Knowledges, Skills and Abilities:

Thorough knowledge of procedures, methods and equipment used in performing engineering surveys. Considerable knowledge of mathematical functions, including algebra, geometry, and trigonometry. Skilled in CADD operation, skilled in the use of survey instruments, including GPS receivers, data collectors, and skilled in the use of office equipment such as calculators and computers. Ability to read, interpret and explain construction plans, court records, title records, technical and procedural manuals, etc. Ability to take notes and prepare or review reports, good communication ability, and supervisory ability to coordinate the activities of lower level employees and instruct them in proper work methods.

B. 1. Required Minimum Training:

Graduation from a two year technical college with a degreein Civil Engineering or SurveyTechnology and five years of progressive transportation experience.

2. Additional Training/Experience:

Additional training as needed will be supplied by supervisor and Location & Surveys Unit or NCDOT Training Personnel.

3. Equivalent Training and Experience:

Graduation from high school and seven years of progressive transportation technician experience; or an equivalent combination of training and related experience.

C. License or Certification Required by Statute or Regulation:

NC Driver's License is required.
Surveyor-In-Training Certification preferred.

IV. CERTIFICATION: Signatures indicate agreement with all information provided, including designation of essential functions.

Supervisor's Certification: I certify that (a) I am the Immediate Supervisor of this position, that (b) I have provided a complete and accurate description of responsibilities and duties and (c) I have verified (and reconciled as needed) its accuracy and completeness with the employee.

Signature _____ Title: _____ Date: _____

Employee's Certification: I certify that I have reviewed this position description and that it is a complete and accurate description of my responsibilities and duties.

Signature _____ Title: _____ Date: _____

Section or Division Manager's Certification: I certify that this position description, completed by the above named immediate supervisor, is complete and accurate.

Signature _____ Title: _____ Date: _____

Department Head or Authorized Representative's Certification: I certify that this is an authorized, official position description of the subject position.

Signature _____ Title: _____ Date: _____